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**Agricultural
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ARS–108

PC GRIN

Germplasm Resources
Information Network
Data Query System for the PC

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While supplies last, single copies of this publication may be obtained at no cost from the Database Manager, GRIN Database Management Unit (DBMU), BARC-West, 10300 Baltimore Avenue, Building 003, Room 407, Beltsville, MD 20705–2350. Phone: (301) 504–5666, FAX: (301) 504–5536. To obtain help with technical problems, contact the Database Manager at the above address or phone number.

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What Is the National Plant Germplasm System and What Is GRIN?

The National Plant Germplasm System Goal

The National Plant Germplasm System (NPGS) is a network of organizations and people dedicated to preserving the genetic diversity (germplasm) of plants. Members of NPGS include Federal, State, and private organizations. Coordinating the system is the Agricultural Research Service (ARS), principal research agency of the U.S. Department of Agriculture.

Since many important crop species originate outside the United States, the first steps toward the goal of diversity is the collection, introduction, and preservation of germplasm in NPGS. New germplasm (accessions) enters NPGS through the Plant Introduction Office (PIO) at the ARS Beltsville Agricultural Research Center. These accessions are often collected on plant exploration trips or donated by foreign cooperators or international germplasm collections. PIO assigns an identifier, the Plant Introduction (PI) number, to each accession before sending the plant material to one of 21 national germplasm collection sites for maintenance.

GRIN'S Purpose

The Germplasm Resources Information Network (GRIN) is the centralized computer database system that manages plant germplasm documentation and movement throughout NPGS. It is through GRIN that scientists can locate plants with specific characteristics and then obtain them for research purposes.

When germplasm is introduced, PIO enters into the GRIN database, information received with an accession or group of accessions. These data may include the specific origin, cultivar name, donor information, and taxonomic classification.

After this initial documentation and, if required, a period of quarantine, the accession is sent to the appropriate NPGS germplasm collection site (also called a maintenance site) for long-term maintenance, distribution, and evaluation. This information is also available through GRIN.

A sample of each accession is maintained in long term storage at the ARS National Seed Storage Laboratory (NSSL) at Fort Collins, Colorado. NSSL serves as a backup for the maintenance sites and does not normally distribute germplasm.

Why Use GRIN, pcGRIN?

The Usefulness of GRIN

Perhaps you are looking for a variety of wheat with resistance to a certain pathogen; or a list of the wild relatives of maize; or strawberry lines with prolific runners; or soybean cultivars originally from Japan; the Germplasm Resources Information Network (GRIN) may be able to help you locate these data and obtain the plant material for research purposes through its pcGRIN or GRIN program.

The GRIN database is the centralized information system developed to preserve and distribute information about plant germplasm throughout NPGS.

pcGRIN as an Aid

pcGRIN is a version of GRIN that includes data about one or more crops. Requested data is sent on floppy diskette which you load onto your PC. This enables you to access the data any time on your PC, without telephone line cost. The program for accessing these data follows the same principles of GRIN, but is changed to accommodate the PC and floppy diskette.

The pcGRIN database may be obtained without charge by any plant scientist, breeder, or research organization who has access to a personal computer. To obtain pcGRIN, send your request to the following address:

> The Database Manager
> GRIN DataBase Management Unit (DBMU)
> 10300 Baltimore Blvd.
> Building 003, Room 407, BARC-West
> Beltsville, Maryland 20705-2350
> Phone: 301-504-5666
> FAX: 301-504-5536

If you have any questions about this manual or the operation of pcGRIN, contact the Database Manager for assistance. However, if you have questions about specific germplasm data contact the appropriate NPGS collection site for clarification. A list of these sites is given in appendix C and in the **DIRECTORY** option in the Master Menu.

Conventions and Standards Used To Make This Manual Clear

To distinguish the user's input (commands) from the computer's output (display), this manual uses several conventions:

1. All user commands are CAPITALIZED and in **BOLD**.

2. Each command line must end in a return or enter key in order to send the instruction to the computer. This is indicated by [ENTER].

3. Examples of terminal displays are indented, printed in smaller typeface and surrounded by a box ▭ .

4. Prompts within the text are in *italics*.

5. Information within square brackets [ ] is variable and must be substituted by the user (e.g., [access code]).

6. Author clarifications are within braces { }.

Actual Uses of These Conventions on Your PC

Commands are capitalized for emphasis in this manual. However, the program will accept commands in upper case, lower case, or a combination of the two.

At any Yes/No prompt, you may enter Y or N.

Equipment and Installation of pcGRIN From Diskettes

If you receive pcGRIN diskettes from the Database Management Unit, follow these instructions to install pcGRIN onto your computer.

Equipment

The equipment required to access the data via pcGRIN is an MS-DOS based microcomputer with at least 640K of memory and a hard drive with 10 to 100 megabytes of free space. The amount of free space needed is dependent on the crop you are interested in observing.

Installation Procedure for pcGRIN

Step One

Decide:
- from which diskette drive you want to install the supplied diskettes
- onto which drive or partition you want to install pcGRIN

The following example assumes:
- you are installing from diskettes in drive A
- to the hard disk drive C on your PC

If either differs, replace the drive letter with your install diskette drive letter or hard disk drive letter.

Step Two

At the DOS prompt, assuming you are installing from your a to c drives, type:

A:INSTALL A C

Insert the sequence of diskettes provided beginning with DISK 1.

Step Three

At the first prompt, enter the startup or boot drive letter, type:

C ENTER

At the second prompt, enter the name of the drive on which you installed pcGRIN, type:

C ⌨ENTER⌨

Step Four

Usage of pcGRIN requires the AUTOEXEC.BAT path statement contain **C:\PCGRIN** and the CONFIG.SYS contain at least 40 files and 15 buffers.

You will be asked:

Should your AUTOEXEC.BAT and CONFIG.SYS Files Be Updated Now (Y/N/<CR>=Y)?

A **Yes** answer will make sure:
- the path contains c:\PCGRIN
- Files >=40
- Buffers >=15

A **No** answer will do nothing to your system.

Step Five

When complete, you will be prompted to reboot your machine. This finishes the installation.

To reboot, remove the floppy diskette, and press:

⌨CTRL⌨   ⌨ALT⌨   ⌨DEL⌨

Transferring pcGRIN Over the Internet

If you have access to the Internet, you can obtain pcGRIN without going through the Database Management Unit. The following instructions show two different ways you can install pcGRIN from the Internet onto your computer:
- using Gopher
- using FTP (File Transfer Protocol).

Equipment

You need access to the Internet. Depending upon how you access the Internet, you may need:
- communication software
- a modem.

Plus, to access the data via pcGRIN, you need an MS-DOS based microcomputer with at least 640K of memory and a hard drive with 10 to 100 megabytes of free space. The amount of free space needed depends on the crop you want to observe.

Transferring pcGRIN Using Gopher on the Internet

If you have access to the Internet, either directly or via a local host computer (e.g., campus computer center) and you have local Gopher client software, then you can access our Gopher server by typing:

gopher gopher.ars-grin.gov

If you wish to find us on the Gopher menu system another way, our proper name is:

GRIN, National Genetic Resources Program, USDA-ARS

Once on our Gopher server, go to the **National Plant Germplasm System** menu and you will find the **pcGRIN** menu.

Crop files transfer easily from Gopher. The files are listed as: [crop].exe <PC Bin> files.

Choose the number of the crop you are interested in and press ⌈ENTER⌋.

The crop file is now on your host computer. Skip to the installation instructions on the next page for help with the install section.

Transferring pcGRIN Using FTP on the Internet

If you have access to the Internet, but do not have gopher software, then use the File Transfer Protocol (FTP) either directly through a network interface or via a local host computer (e.g., campus computer center).

The following steps assume you are familiar with the FTP command and can transfer binary files over the Internet to your PC. If you have questions, consult your local Internet access or computer science personnel.

Step One

Connect to the GRIN computer using FTP:
ftp sol.ars-grin.gov [ENTER]

or

ftp 192.100.146.3 [ENTER]

When asked for your username, type:
anonymous

When asked for your password, press:
[ENTER]

Step Two

Set the filetype to binary. At the *ftp>* prompt, type:
binary

Step Three

Attach to the pcGRIN subdirectory; type:
cd /pub/pcgrin

Step Four

Display the list of available crops; type:
ls

The crops are listed as [crop].exe files. For example: peppers.exe

Step Five

To transfer the crop you want, type:
get peppers.exe

Step Six

Leave the FTP connection. At the *ftp>* prompt, type:
quit

Installation Instructions

Step One

On your PC's hard drive, create a pcGRIN root level directory. This is where you will install pcGRIN. The following assumes you wish to install to C, type:

> **c:**
> **cd **
> **mkdir pcgrin**

Complete any steps needed to get the [crop].exe file to the pcGRIN directory. For example, you may have to download from the Internet Server, etc.

Step Two

Return to the pcGRIN directory you created earlier. Make sure the [crop].exe file is there (copy it there, if needed).

In our example, at the **C:** prompt, type:

> **cd pcgrin**

The directory should contain the pepper file:

> PEPPERS.EXE

Step Three

Type the crop name:

> **peppers**

Then type:

> **install**

Step Four

When complete, you will be prompted to reboot your machine. This completes the installation. To reboot, press:

CTRL   ALT   DEL

Obtaining the pcGRIN Manual From the Internet

To obtain the pcGRIN User Manual over the Internet, you have three choices:

1. Use Gopher. Press the number of the manual and the enter key. Press the print key available with Gopher.

2. Use FTP. First reset the filetype to ASCII. At the *ftp>* prompt, type:

   ascii

Then type:

   get pcgrin.txt

3. Send an E-MAIL request for a printed version of the pcGRIN Manual to:

   dbmuja@sol.ars-grin.gov

Accessing pcGRIN

After installing pcGRIN, you can access it one of two ways:

1. If you allowed your path to be changed, at any DOS prompt, type the name of the crop and press [ENTER].

Example:

      C:\> **PEPPERS** [ENTER]

2. If you did not change your path, at the c:\ prompt, type:

      CD PCGRIN [ENTER]
      PEPPERS [ENTER]

The pcGRIN User's Manual

Manual Design

This manual is arranged in the order of the Master Menu. Each menu option is described in detail with examples to illustrate its operation. Potential problems are discussed.

The Dynamic GRIN Database

The GRIN database is constantly changing, data are constantly being added and updated. Because of this, information displayed on your terminal may not be the same as the examples presented here. These examples, however, represent the type of information in the pcGRIN database.

Problems Using the pcGRIN System

Problems associated with your computer system cannot be predicted. If you have trouble here, consult your appropriate reference manuals.

Other problems such as those making the system work for you can be resolved by the DBMU. Contact:

The Database Manager
GRIN DataBase Management Unit (DBMU)
10300 Baltimore Blvd.
Building 003, Room 407, BARC-West
Beltsville, Maryland 20705-2350
Phone: 301-504-5666
FAX: 301-504-5536

Keyboard Features

Several keyboard features are important to know.

Enter

Commands typed at your keyboard are not sent to the program until you press the Return or Enter (ENTER) key.

Backspace

The Backspace key is used to back up the cursor and make corrections BEFORE ENTER is pressed. When using the Backspace key, you must retype everything to the right of the cursor before pressing ENTER.

Arrow Keys

↑ ↓ → ← move the highlighted bar one space.

Control Keys

The key labeled Control (CTRL) is used in combination with other keys to produce "control characters". This is done by holding down CTRL while simultaneously pressing another key. These control characters have special functions.

Control-End

CTRL END tells the system to accept the choices and go to the next screen.

Escape

ESC returns you to either the previous screen or to the Master Menu, depending on where you are. It works at every prompt except in the **GRIN STATS** and **DIRECTORY** menus where you type **QUIT**.

Num Lock

The Num Lock option must be turned off to allow all the function keys to work properly.

Page Up

PG↑ brings you to the top of the screen in the pop-up.

Page Down

PG↓ brings you to the bottom of the screen in the pop-up.

pcGRIN User Information

Data in pcGRIN are made accessible through the pcGRIN Master Menu. This section describes the kind of information available and which menu option to choose to retrieve it.

Information in the pcGRIN database has been grouped by subject matter. These groups represent areas important to the user, such as country information, taxonomy, inventory, and evaluation data.

Accession Data

Accession or passport data contain the basic information that accompanies plant material on introduction to NPGS. Accession data include:

- initial taxonomy
- cultivar name
- country in which material was obtained
- pedigree
- reported attributes
- collection data
  - where (wild or developed)
  - when
  - by whom

Each accession is assigned to a germplasm collection site for maintenance, called the primary supply site.

Taxonomy Data

Taxonomy data contains information for each accession on:

- family
- genus
- species
- common name
- literature references
- synonyms
- geographic distributions

This taxonomy may be different from the classification at introduction because of later re-identification or taxonomic name changes.

Inventory Data

Inventory data are created and maintained by the germplasm maintenance sites. This information includes:

- locally assigned identifiers
- distribution availability

Observation and Descriptor Data

Observation data, also called evaluation and characterization data, are probably of most interest to the user. Accessions are evaluated for a set of characteristics (descriptors) specific for each crop. These descriptors are determined by Crop Advisory Committees and crop curators as those characteristics of greatest importance to the research community. The type of descriptors are:

- morphological traits
- pathogen and pest reactions
- agronomic performance
- chemical composition
- genetic composition
- others

Each maintenance site is responsible for the observation data on the crops they maintain. Not all crops have been evaluated for all types of descriptors yet. Some accessions have been grown and evaluated in more than one location and thus have multiple observations for the same descriptor. These locations are described in environment records within pcGRIN and are part of the observation area.

The Master Menu and a Brief Explanation of Each Option

The pcGRIN Master Menu contains the following information:

F1) SELECT   Select a descriptor list and specify search criteria

F2) ACCESSION   Display all information about an accession

F3) TAXONOMY   Display scientific names and related information

F4) GRIN STATS   Display summary statistics of GRIN data

F5) DIRECTORY   Directory of Crop Advisory Committees
and other NPGS members

F6) QUIT   Exit PCGRIN facility

To select a menu option, you have the following choices:

- press the associated function key, or
- press the ⊡ or ⊡ to reach your choice, then press the ⎄ENTER⎄ key, or
- type the first letter of your selection

A brief explanation of each menu option is given. Subsequent sections of this manual will describe them in detail.

The F1) SELECT Option

The **SELECT** option of the Master Menu is the primary way to retrieve accessions and their associated data from the database. You may select these data by:

- genus name
- genus and species name
- common name

then further by specific descriptor(s) and value(s).

After you have selected data, you may:

- Refine Selected Data
- Show Selected Data
- Print Selected Data
- Load Selected Data To File

These options are used only in conjunction with the **SELECT** option.

The F2) ACCESSION Option

The **ACCESSION** option displays for each accession:

- historical information
- current taxonomy
- inventory availability
- observation data

You may retrieve these data with either a:

- primary identifier, such as a PI number
- secondary identifier, such as a donor number or local name
- cultivar name
- genus name
- genus and species name

The F3) TAXONOMY Option

Current taxonomy and literature may be viewed by selecting:

- scientific name(s)
- common name(s)

The F4) GRIN STATS Option

Statistical summaries of accessions in the GRIN database are presented in tabular form by:

- site
- country of origin
- family
- genus
- taxon
- Crop Science Registrations (CSR)

The F5) DIRECTORY Option

The **DIRECTORY** option provides the names and addresses of Crop Advisory Committee members and other NPGS organizations.

The F6) QUIT Option

The **EXIT** or **QUIT** option ends the pcGRIN session and is executed at this prompt of the Master Menu.

Data Selection Query

What Does The SELECT Do?

The **SELECT** option is the primary way to retrieve accessions and their associated data from the pcGRIN database. Users select data based on their specifications. These specifications (or search criteria) are determined through a series of options and simple questions and answers.

The type of data you can obtain is:

- place of collection
- donor information
- cultivar name
- pedigree
- collector or developer details
- current taxonomy
- secondary identifiers
- inventory identifiers
- observation data
- evaluation data

Once data is selected, you can display it, refine it using additional specifications, print it or export it to files outside the pcGRIN program.

At any prompt within the **SELECT** option, you may press [ESC] to return to the Master Menu or to the previous menu. If you press [ESC] at any other time, unless told, you will exit the program.

Using The SELECT Option

Suppose you are a wheat breeder interested in *Triticum aestivum* with resistance to Barley Yellow Dwarf Virus and Hessian Fly, Biotype B. This is how you select accessions.

At the Master Menu:

Choose [F1]

or press [ENTER] if the **SELECT** option is highlighted

or type S

A new menu will pop-up with five choices:

Define Selection Criteria
Refine Current Selection
Show Selected Data
Print Selected Data
Load Selected Data to File

DEFINE SELECTION CRITERIA is automatically highlighted,

Press ⌨ENTER

A new menu will pop up with two more choices:

Select Search Criteria from Menu
Define Search Criteria by Freeform Input

These choices are the two ways in which you choose what data to retrieve from the pcGRIN database.

- The first choice provides pop-up screens and menus. If you are new to pcGRIN, proceed with this choice.

- The second choice provides more freedom, but should not be used until you are familiar with the system.

The unique features of each of these options are explained in the next two sections. Features common to both options are described thereafter.

Using the SELECT SEARCH CRITERIA FROM MENU Option

The first choice is here for the wheat breeder looking for *Triticum aestivum* with resistance to Hessian Fly, Biotype B and resistance to Barley Yellow Dwarf Virus. After you choose **SELECT SEARCH CRITERIA FROM MENU**, you have a new choice of Genus, or Common Name via a pop-up menu.

Highlight [F1], **GENUS SELECTION**

Press **T** for *Triticum* or move the [↓] key to highlight ***Triticum***

Press [ENTER]

At the next pop up menu:

Highlight ***aestivum***

Press [ENTER]

A box describing your choice appears:

> Please Wait While GRIN Tables Are Searched For A
> Descriptor List Associated With The Specified Criteria:
> Triticum aestivum*

If instead, you wanted only the genus, press [ESC] after choosing *Triticum*, and just the genus is chosen and displayed.

In our example, however, the wheat breeder is looking for *Triticum aestivum* with resistance to Barley Yellow Dwarf Virus and Hessian Fly Biotype B.

This is the end of the section on the first choice. Skip the next page to continue to descriptors.

Using the DEFINE SEARCH CRITERIA BY FREEFORM INPUT Option

The second choice is here for the wheat breeder looking for *Triticum aestivum* with resistance to Hessian Fly, Biotype B and resistance to Barley Yellow Dwarf Virus. To get here from the Master Menu:

Press ⌨F1 in the Master Menu and press ⌨ENTER

Press ⌨ENTER at the **DEFINE SELECTION CRITERIA**

Highlight **SELECT SEARCH CRITERIA BY FREEFORM INPUT** and press ⌨ENTER

A menu pops up asking you to enter a crop identifier. You can enter either a genus name, species name, or common name. If you cannot remember how to spell one of these names, type only one or more letters.

Type **t** for *Triticum aestivum* and press ⌨ENTER

A new screen will pop-up:

A Total of 30 Scientific Names Found For T*

Triticum aestivum
Triticum aethiopicum
Triticum araraticum
Triticum boeoticum
Triticum boeoticum subsp. boeoticum
Triticum boeoticum subsp. thaoudar
Triticum carthlicum
Triticum compactum
Triticum dicoccoides
Triticum dicoccon
Triticum dicoccon subsp. asiaticum

Search Criteria Selected
Genus: T*

Hit ANY Key to Continue or F1 to Access Taxonomy Window

Press ⌨F1 to enter the pop-up window.

Highlight your choice, ***Triticum aestivum***, and press ⌨ENTER

Please Wait While GRIN Tables Are Searched For A Descriptor List Associated With The Specified Criteria: Triticum aestivum*

Determining Descriptors

At this point, both ways to select search criteria continue the same.

You have just chosen *Triticum aestivum*:

Press any key to continue and a new screen appears:

Display The List of Crop Specific Descriptors for WHEAT (Y/N)? N

What is a List of Crop Specific Descriptors?

It is a grouping of observation data by crop or group of related crops. Each descriptor list contains a set of crop specific descriptors, which are determined by the crop curators or associated Crop Advisory Committees. The descriptor list sometimes has a maintenance site code as a prefix to its name. Some genera have more than one descriptor list. If the crop you choose has more than one list, a screen pops up from which you can choose the list you are interested in seeing. For example, *Zea* has two descriptor lists, while *Triticum* has only one.

In the case of *Zea*, a screen appears to ask you which crop descriptor list you are interested in using:

Observation Data Are Associated With 2 Descriptor Lists for
Zea*
Select Descriptor List From Which to Display Observation Data

MAIZE
NC7-CORN

What is a Crop Specific Descriptor?

A crop specific descriptor is a physiological or morphological characteristic that is evaluated for a specific crop or group of related crops. Some examples are:

- plant height
- leaf shape
- disease resistance
- yield
- days to maturity
- chromosome number
- protein content

A descriptor consists of a name, definition, and value (or range of values). The descriptor name and possible values (codes) for the specified descriptor list must be known for you to be able to select data.

Descriptor Qualifiers

A few descriptors are differentiated by a qualifier. These qualifiers are used mainly to distinguish between different races or biotypes of a pathogen or pest. An example of a descriptor qualifier is given for the wheat descriptor Hessian Fly:

Descriptor Name: HESSIAN-FLY

RESISTANCE TO HESSIAN FLY (Mayetiola destructor).
CODED 1 to 9.

Available Qualifiers For HESSIAN-FLY

BIOTYPE-GP
BIOTYPE-L
BIOTYPE-C
BIOTYPE-E
BIOTYPE-B

List of Available Code Values for HESSIAN-FLY
1   RESISTANT
9   SUSCEPTIBLE

Hit ANY Key to Return and Define a Descriptor Value:

Crop specific descriptor lists are available only for those crops that have characteristic and/or evaluation data. General descriptor information, however, is provided for every crop and accession.

General Descriptors

In addition to crop specific descriptors, all accessions in the pcGRIN database are described by general descriptors that are not crop dependent. These general descriptors include the historical information received with the accession at the time of introduction, such as:

- cultivar name
- donor or collector information
- taxonomy
- pedigree

These general descriptors may also be used as search criteria. A complete list of general descriptors is also provided in appendix A. Here is the list of general descriptors:

ACP	ID Prefix
ACNO	ID Number
ACS	ID Suffix
ACINVF	Inventory Availability
ACPSS	Acc. Primary Supply Site
RIACQ	Donor Institute
RYRECD	Year Received
RYPIA	Year PI Number Assigned
SIDID	Secondary ID (Contains Cultivar, Local Name, Donor No., Collector No., Institute No., and Other No.)
CULTIVAR	Cultivar Name
COLL_NUM	Collector Number
ACCOL_1	Collector's Name
LOCAL_NAME	Local Name
ACYCOL	Year Collected
ACLATH	Latitude Hemisphere
ACLATD	Latitude Degrees
ACLONH	Longitude Hemisphere
ACLOND	Longitude Degrees
ACELLO	Elevation Low Value
GEOCTY	Country Name
GEOSTA	State/Province Name
ACDEV	Developer Name
ACIORI	Developer Institute
EVQNAM	Query Name Institute
EVINST	Environment Institute
EVSTA	Environment State
EVCTY	Environment City
EVEVAL	Evaluator's Name
EVYTS	Year Evaluated

Looking at the screen again:

```
Display The List of Crop Specific Descriptors for WHEAT (Y/N)?  N
```

If you answer **Y**, you will be able to choose accessions based on your requirements, *Triticum aestivum,* resistant to Barley Yellow Dwarf Virus and Hessian Fly, Biotype B.

The wheat breeder wants to display the list of crop specific descriptors, and enters a **Y** at the prompt:

```
Display The List of Crop Specific Descriptors for WHEAT (Y/N)?  Y
```

The crop specific descriptor list for *Triticum aestivum* has a first screen that looks like this:

```
WHEAT

No.        Descriptor Name    Explanation

65017      AWN-COLOR          AWN COLOR
65018      AWN-TYPE           PRESENCE OR ABSENCE OF AWNS
65030      BYDV               BARLEY YELLOW DWARF VIRUS
65040      CEPH-STRIPE        CEPHALOSPORIUM STRIPE
65046      CHRM-NUM           CHROMOSOME NUMBER
65032      COMMON-BUNT        COMMON BUNT
65033      DWARF-BUNT         DWARF BUNT
65038      FLAG-SMUT          FLAG SMUT
65015      GLUME-COLOR        GLUME COLOR
65010      GLUME-PUBES        GLUME PUBESCENCE
65041      GREEN-BUG          GREENBUG
65002      GROWTH-HABIT       GROWTH HABIT
65003      HEADING-DATE       DAYS TO ANTHESIS
65042      HESSIAN-FLY        HESSIAN FLY

More?
```

This descriptor list is displayed on successive screens. At the bottom of each screen a *More?* prompt appears providing the

opportunity to continue or stop the display. Enter **Y** or press
[ENTER] to continue the display or enter **N** to stop the display and
continue to the next screen. If you press [ESC] you advance to
the *Please Specify A Descriptor:* prompt, which will be discussed
on the next page.

Note: Crop specific descriptors are displayed twice. First by
their name, number, and a short explanation. Then by a full
explanation.

At the bottom of the crop specific descriptor list, the following
prompt appears:

> General Descriptors Are Available, View These?

After you have seen enough of the descriptor list, at the *More?:*
prompt:

> press **N**

Using the *Please Specify A Descriptor:* Prompt

After you are finished with the descriptor list, a new screen will
pop-up with the phrase:
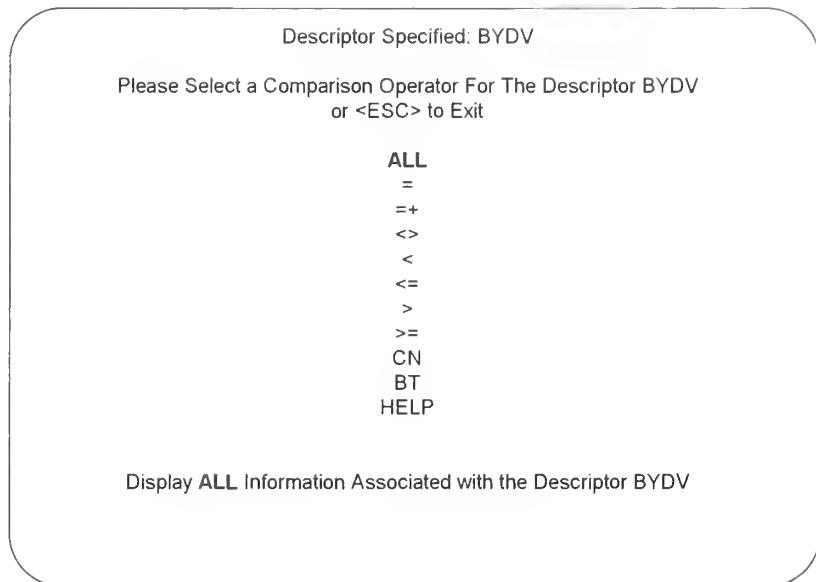
> Please Specify a Descriptor:

If you type **HELP** at this prompt, the descriptor list is displayed
again.

At this point you can enter either **65030** or **BYDV**. This is what
you will see:

> Please Specify a Descriptor: **BYDV** [ENTER]

The next screen asks for a comparison operator:

```
        Descriptor Specified: BYDV

  Please Select a Comparison Operator For The Descriptor BYDV
                    or <ESC> to Exit

                        ALL
                         =
                        =+
                        <>
                         <
                        <=
                         >
                        >=
                        CN
                        BT
                       HELP


  Display ALL Information Associated with the Descriptor BYDV
```

The first comparison operator, **ALL**, is highlighted and explained on this screen. If you move the cursor bar down to other comparison operators, you will see an explanation for each.

List of Comparison Operators

The following list of comparison operators is for your records:

- ALL   Display ALL information associated with the descriptor
- =   Display information EQUAL to a specified value
- =+   Display information equal to multiple values selected from a menu.
- <>   Display information NOT EQUAL to a specified value
- <   Display information LESS THAN a specified value
- <=   Display information LESS THAN or EQUAL to a specified value
- >   Display information GREATER THAN a specified value
- >=   Display information GREATER THAN or EQUAL to a specified value
- CN   Display information CONTAINING a specified value
- BT   Display information falling BETWEEN 2 specified values
- HELP   Display help screen with general information or available codes

The comparison operator '=+':
- provides you with the descriptor values available, listed in the "Val" column
- explains these values, listed in the "Definition" column
- lets you know how many accessions in the database have these values, listed in the "Count" column

Suppose you are a wheat breeder looking for resistance to Barley Yellow Dwarf Virus (BYDV). If you want to see how many accessions in the database are fairly resistant to this disease, you would choose the comparison operator =+. A table will appear for you to choose multiple values of BYDV.

The table would look like this:

Descriptor Specified: BYDV

Please Select a Comparison Operator For the Descriptor BYDV

or <ESC> to Exit

Search Criteria: Wheat
The Window to the Right Displays All VALID
Descriptor Values for BYDV

Position the Selection BAr Over the Desired
Descriptor Value and Hit <CR>

The List of Values Will Be Assembled and
are Displayed in the Window Below in Yellow

Terminate the List by Hitting <CTRL> <END>

Val	Count	Definition
1	61	Resistant
2	805	
3	3076	
4	4225	
5	4023	
6	3385	
7	1422	
8	579	
9	68	Susceptible

BYDV =

In this instance, when you pick values 1, 2, and perhaps 3, you would also know in advance how many accessions you are choosing.

If you need help determining how to choose resistance to Barley Yellow Dwarf Virus:

press **H**

A new screen will explain:

```
Descriptor Name:  BYDV        Barley Yellow Dwarf Virus

Resistance to Barley Yellow Dwarf Virus

            List of Available Code Values for Barley Yellow Dwarf Virus
            1           RESISTANT
            9           SUSCEPTIBLE

Hit ANY Key to Return and Define a Descriptor Value
```

After you return to the comparison operator list:

move the cursor bar to < with the [↓]
and press [ENTER]

The next screen displays the choice and asks specifics:

```
                    Descriptor Specified: BYDV

        Please Select a Comparison Operator For The Descriptor BYDV
                          or <ESC> to Exit

                Select Accessions Where BYDV
                is Less Than  _____
```

Enter 5. The next screen asks for another descriptor:

```
                Specify Another Descriptor: _____
```

Enter **65042** or **Hessian-Fly**

Because Hessian Fly is one of the descriptors that has a
qualifier, a special screen geared towards qualifiers is shown
before the comparison operator screen appears.

The Qualifier Screen as an Aid

Search Criteria: WHEAT

Special Qualifiers Have Been Encountered
With the HESSIAN-FLY Descriptor

If You Wish to Further Refine The Search
Criteria for this Descriptor, Position
the Selection Bar Over The Desired
Qualifier and Hit <CR>

If No Qualifier is Required Hit the <ESC> Key

BIOTYPE-GP
BIOTYPE-L
BIOTYPE-C
BIOTYPE-E
BIOTYPE-B

Position the cursor bar over **Biotype B** and press ⏎ENTER

You will again be asked for a comparison operator.

Highlight the word **HELP** and press ⏎ENTER

Descriptor Name: HESSIAN-FLY

RESISTANCE TO HESSIAN FLY (Mayetiola destructor).
CODED 1 to 9.

Available Qualifiers For HESSIAN-FLY

BIOTYPE-GP
BIOTYPE-L
BIOTYPE-C
BIOTYPE-E
BIOTYPE-B

List of Available Code Values for HESSIAN-FLY
1   RESISTANT
9   SUSCEPTIBLE

Hit ANY Key to Return and Define a Descriptor Value:

Display Help Screen With General Information or Available Codes

Press any key and the comparison operator
screen will reappear

Move the ⬇ to highlight < and press ⏎ENTER.

The next screen asks for a comparison operator:

> Descriptor Specified: HESSIAN-FLY
>
> Please Select a Comparison Operator For The Descriptor HESSIAN-FLY
> or <ESC> to Exit
>
> Select Accessions Where HESSIAN-FLY BIOTYPE B
> is Less Than 5   ⏎ENTER

The following screen asks if you want another descriptor

Type N

> Specify Another Descriptor: No

The next screen recaps your choices and tells you to press
⏎ENTER to extract data:

> Current Selection Criteria Include The Following:
>
> Criteria: TRITICUM aestivum*
> Descriptor List: WHEAT
> Genus: TRITICUM
> Species: aestivum
> Common Name: COMMON WHEAT
>
> 1. BYDV < 5
> 2. HESSIAN-FLY < 5
> 3. QUALIFIER = BIOTYPE B
>
> Hit <CR> to Extract Data Based on Search Criteria or <ESC> to Stop:

Press ⟦ENTER⟧ for the results of your query

Please Wait While Database is Scanned for Accessions Matching Search Criteria

---

Please Wait While Database is Scanned for Accessions Matching Search Criteria

Please Wait...Checking: Observations Table (2976 items)
Checking For: BYDV

Processing ...

Please Wait While Database is Scanned for Accessions Matching Search Criteria

Please Wait...Checking: Observations Table (2976 items)
Checking For: HESSIAN-FLY

Processing ...

Please Wait While Database is Scanned for Accessions Matching Search Criteria
Reconciling Extracted Data For Final Selection: OBSERVATIONS

Processing ...

Accessions Selected Based on Search Criteria: 0
Press <ESC> to STOP Accession Selection
Complete: 20 %

Accessions Selected Based on Search Criteria: 598

Press <ESC> to STOP Accession Selection

A Total of 598 Accession Records Were Found

Hit ANY Key to Return to Main Menu for Data Display or Reselect:

If you are interested in only a few accessions and the counter shows you have selected some, press [ESC]. This stops the search and allows you to look at the accessions already found.

If you want all the accessions possible, let the computer select everything.

Press any key

You are now back at the Master Menu.

Displaying Your Data

Now that you are at the Master Menu:

F1) SELECT   Select a descriptor list and specify search criteria

F2) ACCESSION   Display all information about an accession

F3) TAXONOMY   Display scientific names and related information

F4) GRIN STATS   Display summary statistics of GRIN data

F5) DIRECTORY   Directory of Crop Advisory Committees
                   and other NPGS members

F6) QUIT   Exit PCGRIN facility

To view the data you have chosen:

Press ⌨F1

or press ⌨ENTER if **SELECT** is highlighted

A new menu pops up with five choices:

> Define Selection Criteria
> Refine Current Selection
> Show Selected Data
> Print Selected Data
> Load Selected Data to File

Highlight **SHOW SELECTED DATA** with the
⌨↓ and press ⌨ENTER

A new menu:

> Display Currently Selected Fields Only (Default)
> Customize Your Own Output By Adding/Removing Fields
> Show All Known Information For Selected Accessions

Three Choices to View the Data You Select

1. Display Currently Selected Fields Only (Default)

This choice provides:

- a fast view of the accession(s)
- the data specified by your search criteria
  - the accession number(s)
  - the fields you choose
  - the known taxonomy
    - family
    - genus
    - species

2. Customize Your Own Output By Adding/Removing Fields

This choice provides:

- all the information in Choice 1
- plus the ability to modify the accessions by:
  - adding fields
  - deleting fields

3. Show All Known Information For Selected Accessions

This choice provides:

- a detailed view of all the information in the database for your selected accessions
- a way to compare your choices better by looking at all observation and evaluation data available

Using the Display Currently Selected Fields Only Option

To quickly see the data you are interested in when you see the pop-up menu:

> Display Currently Selected Fields Only (Default)
> Customize Your Own Output By Adding/Removing Fields
> Show All Known Information For Selected Accessions

Highlight the choice **DISPLAY CURRENTLY SELECTED FIELDS ONLY (DEFAULT)** and press [ENTER]

A screen with information on your chosen fields plus the taxonomy and accession number will appear.

At the bottom of the screen you will see a *More?* prompt. To see the next screen:

Press ⌜ENTER⌟

or type **Y**

Do this until you have viewed all your accessions, or press **N** at the *More?* prompt to stop the display.

Using the CUSTOMIZE YOUR OWN OUTPUT BY ADDING/REMOVING FIELDS

To view the data you are interested in by adding and/or deleting fields, when you see the pop-up menu:

Display Currently Selected Fields Only (Default)
Customize Your Own Output By Adding/Removing Fields
Show All Known Information For Selected Accessions

Highlight the choice **CUSTOMIZE YOUR OWN OUTPUT BY ADDING/REMOVING FIELDS** and press ⌜ENTER⌟

A new screen will appear:

Current Field Selection

ACC id   (Default)
Taxonomy   (Default)
BYDV
HESSIAN-FLY

To ADD a Field, Press <INSERT> key, Position Cursor and Hit F1 to MARK
To REMOVE a Field, Position Cursor in Right Window and Hit <DELETE> key
The Window to the Right Shows The Selected Fields to Display
HIT <CTRL><END> When Customized Field Selection Has Been Completed

If you wish to add a field to the accessions you want to view:

Press the **<INSERT>** key

A new pop-up lists the general descriptors and then the crop specific descriptors.

To add a field to your list for display:

Move the cursor bar to highlight each field and:

Press [F1]

Keep moving the cursor bar and pressing [F1] until you finish adding fields to your display list.

When you finish adding fields:

Press the [END] key

If you add a field you are not really interested in displaying:

Highlight the field and press [DEL].

When you are done choosing fields and wish to see your accessions:

Press [CTRL] [END]

Your accessions are displayed.

Using SHOW ALL KNOWN INFORMATION FOR SELECTED ACCESSIONS

To view all the data in the database on your selections, when you see the pop-up menu:

> Display Currently Selected Fields Only (Default)
> Customize Your Own Output By Adding/Removing Fields
> Show All Known Information For Selected Accessions

Highlight **SHOW ALL KNOWN INFORMATION FOR SELECTED ACCESSIONS** and press [ENTER]

This option provides all the data in the system.

Refining Your Data
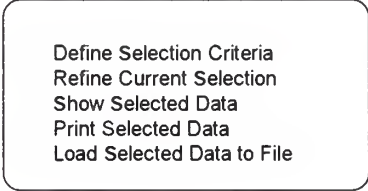
The **REFINE CURRENT SELECTION** option of the **SELECT** option allows you to narrow down previously selected data by specifying additional search criteria. This option looks for data that fulfill the new criteria from the currently selected data file.

REFINE CURRENT SELECTION allows you to choose new criteria without having to rechoose the accessions and descriptors you have already chosen.

At the Master Menu:

Highlight **SELECT** and press **ENTER**

At the next pop up menu:

```
Define Selection Criteria
Refine Current Selection
Show Selected Data
Print Selected Data
Load Selected Data to File
```

Highlight **REFINE CURRENT SELECTION** and press **ENTER**

The next screen to pop up goes directly to the *Specify Another Descriptor:* prompt:

```
Specify Another Descriptor: _____
```

For example, the wheat breeder wants to search for a minimum of shattering.

At the *Please Specify a descriptor:* prompt

Type **SHATTERING** and press **ENTER**

```
Specify Another descriptor:  SHATTERING  ENTER
```

The next screen asks for a comparison operator:

```
Descriptor Specified: SHATTERING

Please Select a Comparison Operator For The Descriptor SHATTERING
                        or <ESC> to Exit

                           ALL
                            =
                           =+
                           <>
                            <
                           <=
                            >
                           >=
                           CN
                           BT
                          HELP


Display ALL Information Associated with the Descriptor SHATTERING
```

Highlight **HELP** or press **H**

```
Descriptor Name: SHATTERING         SHATTERING
  Degree of shattering of seed from the spike.

CODED 1 to 9

   Code    Definition
   1       No Shattering
   9       Severe - 50% of seed dropped

Hit ANY Key to Return and Define a Descriptor Value:
```

Press any key

Highlight <

In the next screen enter the shattering value:

Press 5 [ENTER]

Descriptor Specified: SHATTERING

Please Select a Comparison Operator For The Descriptor SHATTERING
or <ESC> to Exit

Select Accessions Where SHATTERING
Values are LESS THAN 5

Press [ENTER]

You are then asked to choose another descriptor.

At the *Specify Another Descriptor:* prompt:

press [ESC] or [ENTER] or N

Your criteria will be displayed. It will include the criteria from the
original **SELECT** request you made.

Current Selection Criteria Includes The Following:

Criteria: Triticum aestivum*
Descriptor List: WHEAT

1. SHATTERING < 5
2. BYDV < 5
3. HESSIAN-FLY < 5
4. QUALIFIER = BIOTYPE B

Hit <CR> to Extract Data Based on Search Criteria or <ESC> to Stop:

In the same way you can stop **SELECT**, you can stop **REFINE,**
by entering [ESC] when you are given the choice.

The wheat breeder has now selected 32 *Triticum aestivum*
accessions from the database that are resistant to Barley Yellow
Dwarf Virus, Hessian Fly Biotype B, and are not prone to
shattering.

Printing Your Data

After you choose data, return to the Master Menu. Go into the **SELECT** area again.

Press [ENTER] if you are already at the **SELECT** option

or press [F1]

The next menu asks what you would like to do:

```
Define Selection Criteria
Refine Current Selection
Show Selected Data
Print Selected Data
Load Selected Data to File
```

Highlight **PRINT SELECTED DATA** and press [ENTER]

or press **P**

The next menu provides you the same three choices as when you choose to display your data.

```
Print Currently Selected Fields Only (Default)
Customize Your Own Print By Adding/Removing Fields
Output All Known Information For Selected Accessions
```

Three Choices To Print The Data You Select

1. Print Currently Selected Fields Only (Default)

This choice prints:

- a fast view of the accession(s)
- the data specified by your search criteria
  - the accession number(s)
  - the fields you choose

- the known taxonomy
  - family
  - genus
  - species
  - common name(s)

2. Customize Your Own Print By Adding/Removing Fields

This choice prints:

- all the information in Choice 1
- and allows you to modify the accessions by:
  - adding interested fields
  - deleting fields

3. Output All Known Information For Selected Accessions

This choice prints:

- a detailed view of all the information in the database for your accessions
- a way to compare your choices by looking at all observation and evaluation data available

---

Printing the Data by Currently Selected Fields Only

To quickly see the data you are interested in, when you see the pop-up menu:

Print Currently Selected Fields Only (Default)
Customize Your Own Print By Adding/Removing Fields
Output All Known Information For Selected Accessions

Highlight the choice **Print Currently Selected Fields Only (Default)** and press ENTER

The information will scroll on your monitor without stopping at the end of each screen.

You will return to the **SELECT** option, and **PRINT SELECTED DATA** will be highlighted. If you are finished printing, highlight another option or press ESC to return to the Master Menu.

Using CUSTOMIZE YOUR OWN PRINT BY ADDING/REMOVING FIELDS

To print the data you are interested in by adding and/or deleting fields, when you see the pop-up menu:

Print Currently Selected Fields Only (Default)
Customize Your Own Print By Adding/Removing Fields
Output All Known Information For Selected Accessions

Highlight **CUSTOMIZE YOUR OWN PRINT BY ADDING/REMOVING FIELDS** and press ENTER

A new screen will appear:

Current Field Selection

ACC id   (Default)
Taxonomy   (Default)
BYDV
HESSIAN-FLY
SHATTERING

To ADD a Field, Press <INSERT> key, Position Cursor and Hit F1 to MARK
To REMOVE a Field, Position Cursor in Right Window and Hit <DELETE> key
The Window to the Right Shows The Selected Fields to Display
HIT <CTRL><END> When Customized Field Selection Has Been Completed

If you want to add a field to the accessions you are about to print:

Press the **<INSERT>** key

A new pop-up appears with a list of the general descriptors, followed by a list of the crop specific descriptors.

To add a field to your list for display:

Move the cursor bar to highlight each field and:

Press [F1]

Keep moving the cursor bar and pressing [F1] until you finish adding fields to your list.

When you do finish:

Press the [END] key

If you add a field you are not really interested in printing:

Highlight the field and press the [DEL] key

When you are done choosing fields and wish to print your accessions:

Press [CTRL] [END]

Your accessions will print.

Using OUTPUT ALL KNOWN INFORMATION FOR SELECTED ACCESSIONS

To print all the data in the database on your selections, when you see the pop-up menu:

```
Print Currently Selected Fields Only (Default)
Customize Your Own Print By Adding/Removing Fields
Output All Known Information For Selected Accessions
```

Highlight **OUTPUT ALL KNOWN INFORMATION FOR SELECTED ACCESSIONS** and press [ENTER]

This option prints all the data in the system for your accessions.

Exporting Files

After you **SELECT** data, you can export this data to three files outside the pcGRIN program where the data can be used in other PC database or spreadsheet programs. Without leaving the pcGRIN download area, however, you can look at a pcGRIN xBASE File that the pcGRIN program creates for you.

The download option is located in the **SELECT** area as a fifth option. It is listed as:

Load Selected Data to File

When you choose this option, you are given three choices for the kind of data you want to download:
- Load Currently Selected Fields Only (Default
- Customize Your Load File By Adding/Removing Fields
- Output All Known Information For Selected Accessions

Follow the prompts and when you are through, you will see a screen that says:

DOWNLOAD Complete.

ASCII Data Has Been Placed in a File Named: PCGRIN.LOD
ASCII Definition Resides in a File Named: PCGRIN.DEF
xBASE Compatible DBF File Created and Named: PCGRIN.DBF

Hit V to View the PCGRIN xBASE File, ANY other Key to Continue:

Hit ESC to Terminate Loading of Data to External File
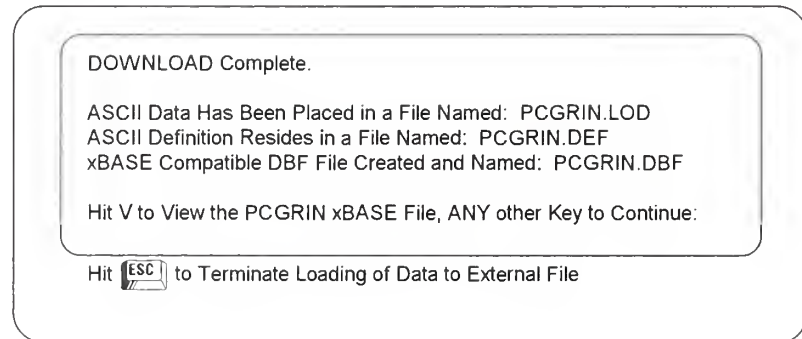
You can press V to view the data you download in a database format, without leaving pcGRIN.

To move through the table layout, press TAB.

What Is the Accession Query?

The ACCESSION option is used to view all information in the pcGRIN database about an accession. It includes:

- current taxonomy
- place of collection
- donor information
- cultivar and/or local name(s)
- collector or developer details
- pedigree
- quarantine status
- other identifiers
- inventory availability
- observation data

At any prompt within the accession query press ⟦ESC⟧ to return to the Master Menu. While you are selecting accessions, press ⟦ESC⟧ to stop the ongoing process and view the accessions already selected.

What are Accession Identifiers?

After choosing the **ACCESSION** option at the Master Menu, you will be asked to enter an accession identifier. This identifier can be one of the following:
- primary identifier
- cultivar name
- taxonomic classification
- inventory identifier
- secondary identifier

An explanation of these identifiers and their format is given below.

Primary Identifier

This identifier contains 2 parts:
- a prefix (up to 4 characters)
- a number (up to 7-digits)

At least one space separates each part. All accessions introduced into NPGS through PIO are assigned a number with the prefix PI. Most accessions in GRIN are identified this way.

The prefix can be entered in upper or lower case. If you know only the number and not the prefix, you can enter it and still find your accession, but you cannot enter only the prefix.

Accessions identified by non-PI numbers generally require some previous knowledge about the specific numbering system. These non-PI numbers are often local maintenance site identifiers, such as:

- CI numbers for small grains
- C numbers for Corvallis
- G numbers for Geneva
- A numbers for Ames
- FC numbers for soybeans

Examples:	PI 500000
	Clav 9401
	FC 19979

Cultivar Name

A complete or partial name can be used. The name can be entered in upper case, lower case, or a combination. If multiple species have accessions with the same cultivar name, you are asked to choose which accession you want to display.

Examples:	Purplestraw
	Purp
	Kuro daizu
	Kuro

Taxonomic Name

This can be a:

- genus name
- genus and species name (binomial)
- genus, species and infraspecific epithet (trinomial)

These names may be entered in upper or lower case and must be separated by one space. Here, too, you can enter only a few letters to obtain the information you want.

Examples:	Brassica
	Brassica juncea
	Brassica juncea var. japonica

Inventory Identifier

This identifier consists of 3 parts:

- a prefix (up to 4 characters)
- number (up to 7-digits)
- suffix (up to 4 characters)

One space separates each part. Inventory numbers vary widely between the maintenance sites, and knowledge of a given sites' inventory system is often required to properly use its inventory numbers.

You can enter all three parts of the identifier or just the number.

Secondary Identifier

The secondary identifier contains a string of letters and/or numbers that can be up to 30 characters long. These identifiers are typically:

- collector numbers
- donor numbers
- local names
- cultivar names
- crop registry numbers
- other institute's identifiers.

Examples:	TEX 11
	VIR-1904
	L24A
	PVP 8600137

Using the ACCESSION Query

At the Master Menu:

Move the ⟳ key to highlight the word
ACCESSION and press ⟦ENTER⟧

or press ⟦F2⟧

Two menus will pop up:

ACCESSION EXAMPLES: Enter A Name to Specify The Accession

PI 516000	- Accession Identifier
KESZTHELYI HENGERES	- Secondary Identifier
KESZ	- Partial Identifiers
Daucus	- Genus Name
Daucus carota	- Genus/Species (Binomial)
Daucus carota subsp. sativus	- Trinomial

Enter accession identifier: _____

Information can be displayed about an accession or group of accessions. If you press ⟦ENTER⟧ you will pull all the accessions.

Suppose you are a pepper breeder looking for all the cultivars that begin with the name Chili.

At the *Enter accession identifier:* prompt

Type **CHILI**

Two screens follow:

Number of Accessions Selected: 290

Press <ESC> to STOP Accession Selection

Number of Accessions Selected: 7

Press <ESC> to STOP Accession Selection

A Total of 7 Accession Records Were Found

Hit ANY Key to Display Accession Information:

The next screen:

Select The Accession(s) to Display by Placing a * in the DISPLAY Field

```
ACCESSION----------MATCH_ID-------------------------------------DISPLAY
PI 224706          Cultivar = CHILI BLANCO
PI 281385          Cultivar = CHILI GORDO
PI 371867          Cultivar = CHILI JALAPENO
PI 281400          Cultivar = CHILI LARGO
PI 273419          Cultivar = CHILI PENGUIN
NSL 6021           Cultivar = CHILI SERRANO
NSL 6025           Cultivar = CHILI UPRIGHT
```

Identifier: chili*

F1 To Mark an Identifier for Display   F2 Marks ALL Accessions for Display

⬆ and ⬇ Arrow Keys Position the Cursor

<CTRL><END> Completes the Selection   <ESC> Returns to the Main Menu

Notice that when you choose a field that is part of the secondary id area, you will search all the fields in the secondary id (cultivar name, donor number, collector number, institute number, local name, and other number). In this case you selected accessions with chili as the cultivar name.

Move the cursor bar until you arrive at the accessions you are interested in and

press *

or press [F1]

Keep pressing [F1] or * until you have chosen all the accessions you want. Then:

press [CTRL] [END]

The first marked accession is displayed. At the bottom of each screen a *More?* prompt appears. This prompt behaves similarly to other more prompts.

More (Y=Yes/N=no/C=Continuous)?

There is no print option with the accession query. If you want to print the information displayed on the screen, in a typical MS-DOS computer, hold down the [SHIFT] key and press the <Print Screen> key. However, the printer command sequence is dependent on the hardware and software you are using. If you have trouble, consult your user manuals.

TAXONOMY Query

The **TAXONOMY** option is a query used to view all taxonomic information in pcGRIN about a species and its associated accession data, if any. Typical displays include:
- family name
- complete scientific name and authority
- common name
- species citations
- species synonyms
- literature references
- species distribution

At any prompt within the taxonomy query you may enter [ESC] to return to the Master Menu or to stop an ongoing process.

To view plant nomenclature, at the Master Menu,

press [F3]

or move the [→] key to highlight
TAXONOMY and press [ENTER]

A new pop up menu provides two options:

```
Scientific Name(s) Selection
Common Name(s) Selection
```

Using the SCIENTIFIC NAME(S) SELECTION Option

Suppose you are a currant breeder and wish to view all the species in *Ribes*. Choose the first option, **SCIENTIFIC NAME(S) SELECTION:**

press [ENTER]

A new pop-up appears:

```
Please Enter a Species Identifier:
```

Species Identifiers

This identifier must be a scientific name or part of one, that is:
- a genus name

- a binomial (genus and species name)
- a trinomial (genus, species and varietal name)
- a synonym

These identifiers may be entered in upper case, lower case, or a combination of cases. And you only have to enter one or more letters to pull all the species that begin with those letters.

Some examples: Ribes
                    Ribes alpestre
                    Ribes alpestre var. commune
                    R

If you are unsure about a taxonomic name to use, at the pop-up:

press ⌨ENTER

Two more screens will be appear. The first screen asks you to wait, while the second screen provides you with the names in the database.

```
┌─────────────────────────────────────────┐
│                                         │
│              Please Wait...             │
│        Scientific Names Selected:       │
│                                         │
└─────────────────────────────────────────┘
```

The next screen lists the nomenclature:

```
╭──────────────────────────────────────────────────────────╮
│      Scientific Names Meeting Current Taxonomic Criteria   │
│   ╭──────────────────────────────────────────────────╮    │
│   │  Ribes acicularis                                │    │
│   │  Ribes acidum  SYNONYM                           │    │
│   │      of  Ribes spicatum                          │    │
│   │  Ribes affine                                    │    │
│   │  Ribes alpestre                                  │    │
│   │  Ribes alpestre var. commune                     │    │
│   │  Ribes alpestre var. giganteum                   │    │
│   │  Ribes slpinum                                   │    │
│   │  Ribes altissimum                                │    │
│   │  Ribes americanum                                │    │
│   │  Ribes amictum  SYNONYM                          │    │
│   │      of  Ribes roezlii                           │    │
│   │  Ribes appendiculatum                            │    │
│   ╰──────────────────────────────────────────────────╯    │
│                    Species: ALL*                          │
│                                                           │
│   F1 To Mark a Taxon for Display     F2 Marks ALL Entries for Display │
│                                                           │
│            ⬆ and ⬇ Arrow Keys Position the Cursor         │
│                                                           │
│   <CTRL><END> Completes the Selection     <ESC> Returns to the Main Menu │
╰──────────────────────────────────────────────────────────╯
```

Synonyms are dimmed in the display and their correct name highlighted. The list of synonyms is not exhaustive.

Move the [↑] and [↓] keys to highlight the scientific name(s) you are interested in and

Press [F1]

The word **< SELECTED >** with an arrow on either side will appear.

Keep pressing [F1] until you are finished choosing names. Then:

press [CTRL][END]

Your taxonomic information will begin to appear. Notice that you also see the number of accessions for each taxon.

> TAXONOMY INFORMATION
>
> Taxon : Ribes acicularis   Smith
>
> Family : Grossulariaceae
>
> Nomen Number: 315993
> Protolog   : Rees, Cycl. 30: no. 25. 1815
>
> Number of Accessions For This Species: 1
>
> ------- Species Citation -----
>
>   Citation: Flora SSSR. 1934-1964
>   Author: V. Komarov et al., eds.
>   Citation: New York Agric. Exp. Sta. Techn. Bull. (= Grossularia a.)
>   109: 107. 1924
>   Author: A. Berger
>
> More (Y=YYes/N=no/C=Continuous)?

At the bottom of each screen you will see the same *More?* prompt you saw in the **ACCESSION** area:

> More (Y=Yes/N=no/C=Continuous)?

Press **Y** until you are through viewing the taxonomy information.

There is no print option with the taxonomy query. If you want to print the information displayed on the screen, in a typical MS-DOS computer, hold down the [SHIFT] key and press the <Print Screen> key. However, the printer command sequence is dependent on the hardware and software you are using. If you have trouble, consult your user manuals.

When you are finished viewing your species, a new screen asks:

```
If You Wish to See Accession Details for The Species Shown
   Please Select The ACCESSION Option off of the Main Menu

   Please Hit ANY Key to Return to The Main Menu:
```

You can now go to the **ACCESSION** area and view the accessions for the species you just chose.

Choosing Taxonomy By The Common Name

Highlight the second option after choosing the **TAXONOMY** area, to choose plants by their common name(s).

Move the ⬇ key to highlight **COMMON NAME(S) SELECTION**

You will then be asked:

Please Enter a Common Name Identifier:

At the *Please Enter a Common Name Identifier:* prompt, enter part or all of a common name or just press ⏎ to get all the common names in the file:

press ⏎

The list for *Ribes* is displayed:

Scientific Names Meeting Current Taxonomic Criteria

Common currant	Ribes rubrum
Garden currant	Ribes rubrum
Golden currant	Ribes aureum
Gooseberry currant	Ribes montigenum
Nordic currant	Ribes spicatum
Northern red currant	Ribes spicatum
Red currant	Ribes rubrum
Red currant	Ribes spicatum
Squaw currant	Ribes cereum
Wax currant	Ribes cereum

Species: ALL*

F1 To Mark a Taxon for Display   F2 Marks ALL Entries for Display

⬆ and ⬇ Arrow Keys Position the Cursor

<CTRL><END> Completes the Selection   <ESC> Returns to the Main Menu

Move the ⬆ and ⬇ arrow keys to highlight the taxa you are interested in and press F1 to mark each

press **CTRL** **END** to finish marking species

or press **F2** to mark everything at once

The next screens provide you with the taxonomy information:

TAXONOMY INFORMATION

Taxon : Ribes aureum Pursh

Family: Grossulariaceae

Nomen Number: 31779
Protolog   : Fl. Amer. sept. 1:164. 1814

Number of Accessions For This Species: 12

----- Common Names -----
Golden currant

More (Y=Yes/N=no/C=Continuous)? **Y**

When you finish viewing your species, the next screen tells you
to go to the **ACCESSION** area to view information on each
accession for the taxa you choose.

GRIN STATS

What is the GRIN STATS Option?

It is a quick reference to information stored in the GRIN database. **GRIN STATS** provides a numerical summary of accession and taxonomy information. With this option you may:

- display a list of all NPGS collection sites
- list the countries of origin for accessions in a genus
- find which collection sites maintain a certain species

The examples in this manual are not updated and do not necessarily reflect the most current data in the database.

The GRIN STATS Main Menu

After you choose **GRIN STATS** from the Master Menu, the first menu is displayed. This menu contains 12 summary tables from which to view information. A menu option may be selected by either the abbreviation or number code. The menu options:

1) SITE	Maintenance sites
2) CO	Country
3) COGE	Country and genus
4) COGS	Country, genus and site
5) COTX	Country and taxonomy
6) FAM	Family
7) GECO	Genus and country
8) GEST	Genus and site
9) TX	Taxonomy
10) TXCO	Taxonomy and country
11) TXST	Taxonomy and site
12) CSR	Crop Science Registration accessions

The menu options allow you to choose the information for display, except for **SITE**.

SITE displays all NPGS maintenance sites and their total number of accessions automatically.

Using the Print Option While in GRIN STATS

To print information from any option:

At the *Selection (append PRINT for hardcopy):* prompt

1. Type the appropriate letters (e.g. **CO**), press **<SPACE BAR>**

1a. or type the main menu option number, press **<SPACE BAR>**

2. Type the word **PRINT** [ENTER]

3. Answer the prompts; then press [ENTER]

Selection (append PRINT for hardcopy):**CO PRINT** [ENTER]

If you have trouble, consult your user manuals first, since the printer command sequence depends on the equipment and software you are using. If that doesn't work, contact the DBMU.

Help and Quit Available Throughout GRIN STATS

- **HELP** provides more explanation at any of the prompts in **GRIN STATS**
- **QUIT** removes you from the current section.
  [ESC] does not work here.

Each Statistics Menu option is discussed and except for the **SITE** option, only the first few lines of each example is shown.

SITE Option From the GRIN STATS Menu

The **SITE** option provides a list of NPGS maintenance sites, site codes, and number of accessions maintained per site. The other summary tables refer to the maintenance sites by these codes. To see the maintenance sites:

At the *Selection (append PRINT for hardcopy):* prompt

Press **1** or type **SITE** [ENTER]

Selection (append PRINT for hardcopy): **SITE** [ENTER]

Number of accessions by maintenance site   As of 5/15/1992

There are 404,818 accessions in the database

Maintenance site	Site code	Count
Barley Genetic Stocks Center	GS-HO	225
Clover Collection	CLOVER	269
Cotton Collection	COTTON	5541
Flax Collection	FLAX	2659
Inter-Regional Potato Intro. Station	IR-1	4791
National Arboretum	NA	1682
National Plant Materials Center	NPMC	761
National Seed Storage Laboratory	NSSL	58665
National Small Grains Collection	NSGC	114582
Natl. Germplasm Rep. - Brownwood	CR-BRW	191
Natl. Germplasm Rep. - Corvallis	CR-COR	7883
Natl. Germplasm Rep. - Davis	CR-DAV	5604
Natl. Germplasm Rep. - Geneva	CR-GEN	4700
Natl. Germplasm Rep. - Hilo	CR-HIL	537
Natl. Germplasm Rep. - Mayaguez	CR-MAY	773
Natl. Germplasm Rep. - Miami	CR-MIA	7597

More?

Maintenance site	Site code	Count
Natl. Germplasm Rep. - Orlando	CR-ORL	8
Natl. Germplasm Rep. - Riverside	CR-RIV	901
North Central Regional PI Station	NC-7	38537
Northeast Regional PI Station	NE-9	12902
Plant Germplasm Quarantine Office	GD	6829
Plant Introduction Office	PIO	882
Southern Regional PI Station	S-9	65917
Soybean Collection	SOY-N	13181
Tobacco Collection	TOBAC	2058
Western Regional PI Station	W-6	47143
		=======
		404818

Press <CR> to continue:

CO (Country) Option From the GRIN STATS Menu

This option displays the number of accessions in the database by country of origin.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **2** or type **CO** [ENTER]

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country or the first several letters and press [ENTER]

or just press [ENTER] to list all the countries

Selection (append PRINT for hardcopy): **CO** [ENTER]

Enter country name or first several letters (<CR>=all): **R** [ENTER]

Number of accessions by country of origin   As of 05/15/1992

Country	Count
Reunion	3
Rhodesia	85
Romania	12180
Ruanda-Urundi	2
Rwanda	63
	=======
	1433

Press **<CR>** to continue:

COGE (Country Genus) Option From the GRIN STATS Menu

This option displays the number of accessions by country of origin and genus.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **3** or type **COGE** ENTER

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country or the first several letters and press ENTER

or just press ENTER to list all the countries

At the *Enter genus name or first several letters (<CR>=all):* prompt

Enter a genus name or the first several letters and press ENTER

or just press ENTER to list the countries you choose and all the genera

Selection (append PRINT for hardcopy): **COGE** ENTER

Enter country name or first several letters (<CR>=all): **G** ENTER

Enter genus name or first several letters (<CR>=all): **Tr** ENTER

Number of accessions and genera by country of origin   As of 05/15/1992

Country	Genus	Count
Germany	Trifolium	78
Germany	Trisetum	3
Germany	Triticum	721
Greece	Tragopogon	6
Greece	Trifolium	183
Greece	Trigonella	2
Greece	Triticum	279
Guatemala	Trifolium	1
Guatemala	Triticum	23
		=======
		1296

COGS (Country Genus Site) Option From the GRIN STATS Menu

This option displays the number of accessions by country of origin, genus, and maintenance site.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **4** or type **COGS** [ENTER]

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country or the first several letters and press [ENTER]

or just press [ENTER] to list all the countries

At the *Enter genus name or first several letters (<CR>=all):* prompt

Enter a genus name or the first several letters and press [ENTER]

At the *Enter site code or first several letters (<CR>=all):* prompt

Enter a site code or the first several letters and press [ENTER]

or just press [ENTER] to select the countries, genera and sites that you choose

Selection (append PRINT for hardcopy): **COGS** [ENTER]

Enter country name or first several letters (<CR>=all): **Bra** [ENTER]

Enter genus name or first several letters (<CR>=all): **Tr** [ENTER]

Enter site code or first several letters (<CR>=all): [ENTER]

Number of accessions, genera and site by country of origin   As of 05/22/1992

Country	Genus	Site	Count
Brazil	Tridens	NC-7	2
Brazil	Trifolium	CLOVER	1
Brazil	Trifolium	NE-9	2
Brazil	Trifolium	S-9	4
Brazil	Triplaris	CR-MIA	1
Brazil	Triticum	NSGC	244
Brazil	Triticum	NSSL	2
			=======
			256

COTX (Country Taxonomy) Option of the GRIN STATS Menu

The **COTX** option displays the number of accessions by country of origin and full taxonomy.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **5** or type **COTX** [ENTER]

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country or the first several letters and press [ENTER]

or just press [ENTER] to list all the countries

At the *Enter taxonomic name or first several letters (<CR>=all):* prompt

Enter a taxon or the first several letters and press [ENTER]

or just press [ENTER] to list the countries you choose and all the taxa

---

Selection (append PRINT for hardcopy): **COTX** [ENTER]

Enter country name or first several letters (<CR>=all): [ENTER]

Enter taxonomic name or first several letters (<CR>=all): **Lin** [ENTER]

Number of accessions and maintenance sites by taxonomy   As of 05/15/1992

Country	Taxonomy	Count
Afghanistan	Linum usitatissimum	24
Argentina	Linum usitatissimum	201
Australia	Linum usitatissimum	57
Belgium	Linum alpinum	1
Belgium	Linum bienne	2
Belgium	Linum perenne	1
Belgium	Linum usitatissimum	1
Bolivia	Linum usitatissimum	1

FAM (Family) Option of the GRIN STATS Menu

This option displays the number of accessions by family name.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **6** or type **FAM** [ENTER]

At the *Enter family name or first several letters (<CR>=all):* prompt

Enter a family or the first several letters and press [ENTER]

or just press [ENTER] to list all the families

Selection (append PRINT for hardcopy): **FAM** [ENTER]

Enter family name or first several letters (<CR>=all): **L** [ENTER]

Number of accessions by family   As of 05/15/1990

Family	Count
Lamiaceae	884
Lardizabalaceae	4
Lauraceae	467
Lecythidaceae	16
Liliaceae	1674
Limnanthaceae	56
Linaceae	2784
Loasaceae	2
Loganiaceae	8
Lythraceae	900
	=======
	6795

Press <CR> to continue: [ENTER]

GECO (Genus Country) Option of the GRIN STATS Menu

The **GECO** option displays the number of accessions by genus and country of origin.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **7** or type **GECO** [ENTER]

At the *Enter genus name or first several letters (<CR>=all):* prompt

Enter a genus or the first several letters and press [ENTER]

or just press [ENTER] to list all the genera

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country name or the first several letters and press [ENTER]

or just press [ENTER] to list the countries you choose and all the genera

---

Selection (append PRINT for hardcopy): **GECO** [ENTER]

Enter genus name or first several letters (<CR>=all): **Zea** [ENTER]

Enter country name or first several letters (<CR>=all): **B** [ENTER]

Number of accessions and countries of origin by genera   As of 05/22/1992

Genus	Country	Count
Zea	Bahamas, The	1
Zea	Barbados	11
Zea	Belize	4
Zea	Benin	1
Zea	Bhutan	6
Zea	Bolivia	1302
Zea	Botswana	2
Zea	Brazil	1880
Zea	British Virgin Islands	19
Zea	Bulgaria	66
Zea	Burkina	193

		3485

GEST (Genus Site) Option of the GRIN STATS Menu

This option displays the number of accessions by genus and maintenance site.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **8** or type **GEST** [ENTER]

At the Enter a genus name or the first several letters (<CR>=all): prompt

Enter a genus or the first several letters and press [ENTER]

or just press [ENTER] for a list of all the genera.

At the Enter site code or first several letters (<CR>=all): prompt

Enter a site and press [ENTER] for all the genera at this site

or just press [ENTER] for a list of all the genera you choose and their sites.

Selection (append PRINT for hardcopy): **GEST** [ENTER]

Enter genus name or first several letters (<CR>=all): **Pyrus** [ENTER]

Enter site code or first several letters (<CR>=all): [ENTER]

Number of accessions and maintenance sites by genera   As of 05/22/1992

Genus	Site	Count
Pyrus	CR-COR	1652
Pyrus	CR-MIA	3
Pyrus	GD	370
Pyrus	NA	1
Pyrus	PIO	4
Pyrus	W-6	1
		=======
		2031

Press <CR> to continue:

TX (Taxonomy) Option of the GRIN STATS Menu

The **TX** option displays the number of accessions by full taxonomy.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

> Press **9** or type **TX** [ENTER]

At the *Enter taxonomic name or first several letters (<CR>=all):* prompt

> Enter a taxon or the first several letters and press [ENTER]
>
> or just press [ENTER] to list all the taxa

Selection (append PRINT for hardcopy): **TX** [ENTER]

Enter taxonomic name or first several letters (<CR>=all): **Z** [ENTER]

Number of accessions by taxonomy   As of 05/22/1992

Taxonomy	Count
Zaluzania discoidea	1
Zamia pumila	1
Zanthoxylum coreanum	1
Zanthoxylum piperitum	3
Zanthoxylum schinifolium	2
Zea diploperennis	9
Zea hybrid	6
Zea luxurians	9
Zea mays	76
Zea mays subsp. mays	27333
Zea mays subsp. mexicana	47
Zea mays var. huehuetenangensis	6
Zea mays var. parviglumis	36
Zea perennis	2
Zebrina sp.	3
Zehneria sp.	1
Zelkova schneideriana	1
Zelkova serrata	4
Zephyranthes atamasco	2

More?

TXCO (Taxonomy Country) Option of the GRIN STATS Menu

The **TXCO** option displays the number of accessions by full taxonomy and country of origin.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **10** or type **TXCO** [ENTER]

At the *Enter taxonomic name or first several letters (<CR>=all):* prompt

Enter a taxon or the first several letters and press [ENTER]

or just press [ENTER] to list all the taxa

At the *Enter country name or first several letters (<CR>=all):* prompt

Enter a country name or the first several letters and press [ENTER]

or just press [ENTER] to list the taxonomy you choose and all the countries

---

Selection (append PRINT for hardcopy): **TXCO** [ENTER]

Enter taxonomic name or first several letters (<CR>=all): **B** [ENTER]

Enter country name or first several letters (<CR>=all): **United States** [ENTER]

Number of accessions and maintenance sites by taxonomy   As of 05/22/1992

Taxonomy	Country	Count
Baileya multiradiata	United States	1
Balsamocitrus dawei	United States	1
Bambusa glaucescens	United States	2
Bambusa oldhamii	United States	1
Bambusa ventricosa	United States	1
Baptisia australis	United States	5
Baptisia bracteata var. laevicaulis	United States	1
Bauhinia binata	United States	1
Bauhinia cunninghamii	United States	1
Bauhinia hybrid	United States	1
Bauhinia lunarioides	United States	1
Bauhinia purpurea	United States	1
Bauhinia variegata	United States	1
Beckmannia syzigachne	United States	1
Belamcanda chinensis	United States	1
Benincasa hispida	United States	1
Berberis julianae	United States	1
Berberis koreana	United States	1
Berchemia scandens	United States	1

More?

TXST (Taxonomy Site) Option of the GRIN STATS Menu

The **TXST** option displays the number of accessions by full taxonomy and maintenance site.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **11** or type **TXST** [ENTER]

At the *Enter taxonomic name or first several letters (<CR>=all):* prompt

Enter a taxon or the first several letters and press [ENTER]

or just press [ENTER] to list all the taxa

At the *Enter site code or first several letters (<CR>=all):* prompt

Enter a site code or the first several letters and press [ENTER]

or just press [ENTER] to list the taxonomy you choose and all the sites

---

Selection (append PRINT for hardcopy): **TXST** [ENTER]

Enter taxonomic name or first several letters (<CR>=all): **Zea** [ENTER]

Enter site code name or first several letters (<CR>=all): [ENTER]

Number of accessions and maintenance sites by taxonomy   As of 05/22/1992

Taxonomy	Site	Count
Zea diploperennis	NC-7	9
Zea hybrid	NC-7	6
Zea luxurians	NC-7	9
Zea mays	GD	55
Zea mays	NC-7	3
Zea mays	NSSL	18
Zea mays subsp. mays	GD	10
Zea mays subsp. mays	NC-7	11337
Zea mays subsp. mays	NSSL	15971
Zea mays subsp. mays	PIO	15
Zea mays subsp. mexicana	NC-7	40
Zea mays subsp. mexicana	NSSL	7
Zea mays var. huehuetenangensis	NC-7	6
Zea mays var. parviglumis	NC-7	36
Zea perennis	NC-7	1
Zea perennis	NPMC	1

=======
27524

CSR (Crop Science Registration) Option of the GRIN STATS Menu

For accessions registered with the Crop Science Society of America, the **CSR** option displays:

- crop name
- registration number
- accession identifier
- cultivar name

To select information, you may enter your choice in either upper or lower case letters. You may display CSR accessions by crop, registration category, or registration number.

At the *Selection (append PRINT for hardcopy):* prompt

> Press **12** or type **CSR** [ENTER]

A list of the crop names appears in a table

> Type the first several letters to select a crop and press [ENTER]
>
> or just press [ENTER] to select from all the crops

Available Crop Names

ALFALFA	FESCUE	OTHER GRASSES	SUDANGRASS
BARLEY	FLAX	OTHER LEGUMES	SUGARBEET
BENTGRASS	GRAMA GRASS	OTHER OILSEEDS	SUGARCANE
BERMUDAGRASS	GUAR	PASPALUM	SUNFLOWER
BLUEGRASS	GUAYULE	PEA	SWEETCLOVER
BLUESTEM	HOP	PEANUT	TIMOTHY
BROMEGRASS	LENTIL	PEPPERMINT	TOBACCO
BROOMCORN	LESPEDEZA	PYRETHUM	TREFOIL,BIRDSF
BUCKWHEAT	LUPINE	RAPESEED	TRITICALE
CASTOR	MAIZE	RICE	VETCH
CLOVER,CRIMSON	MILLET, PEARL	RYE	WHEAT
CLOVER, RED	MISC CROP	SAFFLOWER	WHEATGRASS
CLOVER, WHITE	OAT	SORGHUM	
COTTON	ORCHARDGRASS	SOYBEAN	

At the *Enter two letter registration category code (<CR>=all):* prompt

> Type the two letter registration category code and press [ENTER]
>
> or press [ENTER] to select from all the categories

At the *Enter starting registration number (<CR>=all):* prompt

Type the starting registration number ⌨ENTER

or just press ⌨ENTER for all the registration
numbers in the category and/or crop you
choose

Enter crop name or first several letters (<CR>=all): **WHEAT** ⌨ENTER

Valid Registration Category

CV = Cultivar   GP = Germplasm   GS = Genetic Stock
ML = Mapping lines   PL = Parental Lines

Enter the first two letters of registration category code (<CR>=all): **CV** ⌨ENTER

Enter the starting registration number (<CR>=all): ⌨ENTER

Crop Science Registrations in GRIN   As of 05/22/1992

Crop Name	Reg. no.	Accession ID	Cultivar
WHEAT	CV-1	Cltr 5409	WINTER BLUESTEM
WHEAT	CV-2	Cltr 4463	MARTIN
WHEAT	CV-3	Cltr 4068	PROHIBITION
WHEAT	CV-4	Cltr 6320	GREESON
WHEAT	CV-5	Cltr 5219	WHITE WINTER
WHEAT	CV-6	Cltr 4683	CHALLENGE
WHEAT	CV-7	Cltr 4682	EATON
WHEAT	CV-8	Cltr 6450	WHITE WONDER
WHEAT	CV-9	Cltr 3586	SATISFACTION
WHEAT	CV-10	Cltr 6480	EARLY DEFIANCE
WHEAT	CV-11	Cltr 4959	COLORADO NO. 50
WHEAT	CV-12	Cltr 6017	TOUSE
WHEAT	CV-13	Cltr 6477	DEFIANCE
WHEAT	CV-14	Cltr 5868	RINK
WHEAT	CV-16	Cltr 4067	PACIFIC BLUESTEM
WHEAT	CV-17	Cltr 6004	MEXICAN BLUESTEM
WHEAT	CV-18	PI 42119	DART
WHEAT	CV-19	Cltr 4762	GYPSUM

More?

Directory of NPGS Organizations

The **DIRECTORY** option provides the names and addresses of Crop Advisory Committee (CAC) members and members of other NPGS organizations. Information can be selected either by the member's last name or the organization name.

If you notice an error in any information, please contact the GRIN Database Manager with the correction. The date these lists were last updated appears in the title of each display.

At any prompt within the **DIRECTORY** option you may enter **HELP** for more explanation or **QUIT** to return to the Directory Menu.

To return to the Master Menu at the Directory Menu *Selection (append PRINT for hardcopy):* prompt, enter **QUIT**.

The DIRECTORY Menu

After you choose the **DIRECTORY** option from the Master Menu, the Directory Menu is displayed. From this menu, there are three options from which you can view information. A menu option may be selected by the short acronym or number code.

```
                    Directory Menu


   1) ORG    Organization and committee names
   2) NAME   Directory by individual's last name
   3) GROUP  Membership of an organization or committee

            Also: HELP, QUIT


   Selection (append PRINT for hardcopy):
```

Each menu option performs in a similar manner. Press [ENTER] to display all information or enter the first several letters to specify information. These letters can be entered in either upper or lower case.

If necessary, information is displayed on successive screens. At the bottom of each screen a *More?* prompt appears providing the opportunity to stop the display. Enter **Y** or press [ENTER] to continue or **N** to stop and return to the Directory Menu. After the data is displayed a *Press <CR> to continue:* prompt appears. Press [ENTER] at this prompt to re-display the Directory Menu.

The ORGanization Option

The **ORG**anization option displays the names of the organizations and committees in this directory. Each organization is identified by a short "group" name and its formal title. These group names are also used in the **GROUP** option to view the membership of an organization.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press **ORG** ⌨ENTER⌨

At the *Enter group name or first several letters (<CR>=all):* prompt

Type the first several letters of a group to select all groups that begin with those letters

or press ⌨ENTER⌨ to see all the groups

Selection (append PRINT for hardcopy): **ORG** ⌨ENTER⌨

Enter group name or first several letters (<CR>=all): ⌨ENTER⌨

Organization or committee names   As of 2/7/1992

Group	Organization or committee
ALFALFA	Alfalfa Crop Advisory Committee
APPLE	Apple Crop Advisory Committee
BARLEY	Barley Crop Advisory Committee
CAC-CHAIRS	Crop Advisory Committee Chairpersons
CARYA	Carya Crop Advisory Committee
CITRUS	Citrus & Date Crop Advisory Committee
CLOVER	Clover And Special Purpose Forage Legume Crop Advisory Committee
CONTACTS	National Plant Germplasm System Contacts
CORVAL-TECH	Corvallis Natl Clonal Repository Technical Advisory Committee
COTTON	Cotton Crop Advisory Committee
CRUCIFER	Crucifer Crop Advisory Committee
CUCURBIT	Cucurbit Crop Advisory Committee
CURATORS	NPGS Seed and Clonal Repository Curators
DAVIS	Staff - Davis National Clonal Germplasm Repository
DAVIS-TECH	Davis Natl Clonal Repository Technical Advisory Committee
DBMU	Staff - Grin Database Management Unit (DBMU)
FOOD-LEGUME	Special Purpose Food Legume Crop Advisory Committee
FRUIT-NUT	Tropical Fruit & Nut Crop Advisory Committee
GD	Staff - Plant Quarantine Office (PQO)

More?

The NAME Option

The **NAME** option displays the name, address, and telephone number of an individual by his or her last name.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

> Type several letters to display members whose last names begins with those letters
>
> or press [ENTER] to display all members

Selection (append PRINT for hardcopy): NAME [ENTER]

Enter last name or first several letters (<CR>=all): Mc [ENTER]

Directory of members   As of 2/7/1992

Address

Dr. E. D. McArthur
Int. Forest & Range Experiment Station
Shrub Sciences Laboratory
735 North 500 East
Provo, UT 8460I
(80I) 377-57I7   FTS: 8-586-1014

Dr. P. K. McBeath
Ag. Canada Research Station
P.O. Box 20280
Fredericton, New Brunswick
CANADA

More? NO [ENTER]

The GROUP Option

The **GROUP** option displays the name, address, and phone number of the membership of an organization or committee.

You may enter your choice in either upper or lower case letters.

At the *Selection (append PRINT for hardcopy):* prompt

Press [ENTER] to display all members in this directory alphabetically by group name

or enter the first several letters of a group name to display all members of a group that begin with those letters.

Selection (append PRINT for hardcopy): **GROUP** [ENTER]

Enter group name or first several letters (<CR>=all): **GRAPE** [ENTER]

Directory of organizations and committees   As of 02/7/1992

Address

Group: GRAPE
Mr. David Adelsheim
Grape Crop Advisory Committee
Adelsheim Vineyard
22150 N. W. Quarter Mile Lane
Newburg, OR 97132
(503) 538-3652
FAX: 503-538-9752

Group: GRAPE
Dr. Howard J. Brooks
Ex-Officio
Grape Crop Advisory Committee
USDA, ARS, NPS
Room 236, Building 005, BARC-West
10300 Baltimore Avenue
Beltsville, MD 20705-2350
(301) 504-6252   FTS: 8-964-6252
FAX: (301) 504-6191

More?

At any prompt within a display you may enter **HELP** or **QUIT** to return to either the previous menu or the Master Menu.

Appendix A. General Descriptors

The general descriptors available in the GRIN database are presented in this appendix. They are also shown after the list of crop specific descriptors
- when you answer **Y** to the question *Display the List of Crop Specific Descriptors:*
- or when you answer **HELP** when you see the question *Please Specify a Descriptor:*.

General descriptors may be specified as search criteria in the **SELECT** and **REFINE** options.

Descriptor name	Explanation
ACP	ID Prefix
ACNO	ID Number
ACS	ID Suffix
ACPSS	Acc. Primary Supply Site
ACINVF	Inventory Availability
RIACQ	Donor Institute
RYRECD	Year Received
RYPIA	Year PI Number Assigned
SIDID	Secondary ID (Contains Cultivar, Local Name, Donor No., Collector No., Institute No., and Other No.)
CULTIVAR	Cultivar Name
COLL_NUM	Collector Number
ACCOL_1	Collector's Name
LOCAL_NAME	Local Name
ACYCOL	Year Collected
ACLATH	Latitude Hemisphere
ACLATD	Latitude Degrees
ACLONH	Longitude Hemisphere
ACLOND	Longitude Degrees
ACELLO	Elevation Low Value
GEOCTY	Country Name
GEOSTA	State/Province Name
ACDEV	Developer Name
ACIORI	Developer Institute
EVQNAM	Query Name Institute
EVINST	Environment Institute
EVSTA	Environment State
EVCTY	Environment City
EVEVAL	Evaluator's Name
EVYTS	Year Evaluated

Appendix B. Glossary Of Terms

Accession

Recognized unique genetic material acquired by NPGS and maintained at NPGS collection sites. This material may be seed samples from wild populations, plants of a particular cultivar or other improved germplasm, or tissue cultures. Each accession is given a unique primary identifier, usually a Plant Introduction number (PI number) assigned by the Plant Introduction Office (PIO) in Beltsville, Maryland.

Backspace

Used to back up the cursor one or more spaces to make corrections BEFORE [ENTER] is pressed. For example, if you entered ACX at a prompt, you would press the Backspace key one time and enter C instead of X to change the command to ACC. The backspace will not work if you have already pressed [ENTER].

CAC

Crop Advisory Committee. A generic name for a specific national working group of specialists from public and private sectors that provide analysis, data, and advice about germplasm for a specific crop or group of related crops of present or future economic importance. For example, Citrus, Leafy Vegetables, and Wheat.

Control Character

The Control key ([CTRL]) is used in combination with other keys to produce "control characters". This is done by holding down the Control key while simultaneously pressing another key, similar to the use of the [SHIFT] key. These control characters have special meaning to the computer.

Control End

Pressing [CTRL] [END] tells the system to accept the choices made and to go to the next screen.

Enter

Commands typed at your terminal are not processed by the computer until the Enter or Return ([ENTER]) key is pressed.

Database

A collection of related information or data organized for easy storage, retrieval, and access.

DBMU

DataBase Management Unit (DBMU). A staff of computer specialists and plant scientists located at the Beltsville Agricultural Research Center, Plant Sciences Institute, National Germplasm Resources Laboratory. The DBMU is responsible for maintaining the GRIN system, keeping the database in operation, making modifications to GRIN software as necessary, and providing assistance when requested. The DBMU can be contacted at:

The Database Manager
GRIN DataBase Management Unit (DBMU)
USDA-ARS-PSI-NGRL-GRIN
Building 003, Room 407, BARC-West
Beltsville, Maryland 20705-2350
301-544-5666
FAX 301-504-6305

Default

The action taken when no specific option is chosen and only ENTER is pressed.

Descriptor

Any data field in the pcGRIN database. There are two kinds of descriptors, general and crop specific. General descriptors include historical information received with an accession at the time of introduction and are not crop dependent. In contrast, a crop specific descriptor is a physiological or morphological characteristic that is evaluated for a specific crop or group of related crops. Crop specific descriptors are determined and defined by the specific Crop Advisory Committee or crop curator and may have a coded value (for example, 'Y' for yellow, '1' for susceptible) or an actual value (e.g., 173 = days to anthesis, 41.1 = percent protein). Information is retrieved from the pcGRIN database by specifying descriptor names using the **SELECT** option. General descriptors are listed in appendix A.

Escape

ESC , a command used throughout pcGRIN at any prompt, to return you to the preceding menu or the Master Menu.

Execute

To cause a computer program to perform a specified function.

GRIN

Germplasm Resources Information Network (GRIN). The GRIN database is a centralized information system located at the U.S. Department of Agriculture, Agricultural Research Service, Beltsville Agricultural Research Center, Beltsville, Maryland. GRIN was developed to preserve and distribute information about plant germplasm throughout the NPGS and to any plant scientist, breeder, or research organization nationally and internationally.

Germplasm

Plant genetic resources (plant germplasm) are the raw material required by plant breeders and researchers for the development of improved cultivars. Genetic diversity (gene heritability and variability) is found in wild species, local landraces, heirloom varieties, and adapted cultivars.

Identifier

Any of the names, numbers, or alphanumeric character strings used to distinguish a taxon, accession, or inventory sample. These include scientific names (binomial and trinomial); primary accession identifiers (ACP, ACNO); secondary identifiers such as donor identifiers, collector numbers, crop registry numbers, or other institute identifiers; cultivar names; and inventory identifiers (IVP, IVNO, IVS, IVT).

Maintenance Site

Any of the NPGS units designated to maintain and distribute plant germplasm. In pcGRIN, these sites also include those that participate in germplasm information handling or storage (for example, PIO, SBMNL, and NSSL). Also called collection sites.

Master Menu

A list of options from which a user can choose what operation to perform in the pcGRIN system. This menu appears first and often when ESC is used.

NPGS

National Plant Germplasm System (NPGS). "Provides the genetic diversity necessary to improve crop productivity and to reduce genetic vulnerability in future food and agriculture development, not only in the United States but for the entire world. NPGS acquires, maintains, evaluates, and makes readily accessible to plant scientists a wide range of genetic diversity in the form of seed and clonal germplasm of crops and potential new crops." NPGS Mission Statement, April 1981.

NSSL

National Seed Storage Laboratory (NSSL). The NPGS facility located at Fort Collins, Colorado, for long term storage of accessions maintained as seed. NSSL serves as a back up for the "working" maintenance sites and does not normally distribute germplasm.

Observation Data

Visual observations or measured characteristics about an accession. In the pcGRIN database, each crop or group of related crops is evaluated for a specific set of descriptors (crop specific descriptors). These evaluation data include morphological traits, pathogen and pest reactions, agronomic performance, or chemical composition values.

Passport Data

Contains the basic information that accompanied an accession on introduction to the NPGS through the Plant Introduction Office. These data include initial taxonomy, cultivar name, where collected, pedigree, reported attributes, and other information about where, when, and by whom the accession was collected in the wild or developed. Also called accession data, this information is accessible through the ACCESSION option.

pcGRIN

pcGRIN is a version of GRIN that includes data about one or more crops. Requested data is sent on floppy diskettes. This enables access to the data at any time on your own pc, without telephone line costs.

PI Number

Plant Introduction number. A serial number assigned by the Plant Introduction Office (PIO), Beltsville, Maryland, to germplasm accessions introduced into NPGS. The first PI number was assigned in 1898. PI 561000 was assigned in 1992.

PIO

Plant Introduction Office (PIO). New germplasm that enters NPGS through PIO is assigned a PI number before the material is sent to the appropriate collection site for maintenance. PIO also coordinates plant germplasm exchange between the United States and other countries and oversees U.S. quarantine procedures.

Query

Refers to the process of submitting a program, or series of commands, designed to retrieve certain data from the database.

Refine

Allows a user to specify additional search criteria to accessions already **SELECT**ed from the GRIN database. **REFINE** searches for data that fulfill new criteria from the currently selected data file.

Search Criteria

Data specifications that determine which accessions are retrieved from the database. Search criteria consists of a descriptor name, comparison operator, and value (code). For example, GEOCTY = Peru, where GEOCTY is the descriptor name, = (equals) is the comparison operator, and Peru is the value being sought.

Select

The primary process to retrieve accessions and their associated data from the pcGRIN database as specified by search criteria. The search criteria are entered from within the SELECT option. SELECT displays a running count of accessions that are checked and those that match the specified criteria.

Appendix C: NPGS Collection Sites

Site: **CLOVER**
Clover Collection
Norman L. Taylor, Curator, (606-257-5785)
USDA-ARS
Department of Agronomy
University of Kentucky
Lexington, Kentucky 40506

Site: **COTTON**
Cotton Collection
Ed Percival, Curator, (409-260-9209)
USDA-ARS
Route 5
Box 805
College Station, Texas 77840

Site: **CR-BRW**
National Germplasm Repository Brownwood
L.J. Grauke, Curator, (409-272-1402)
USDA-ARS
Pecan Research
Route 2
Box 133
Summerville, Texas 77879

Site: **CR-COR**
National Germplasm Repository Corvallis
Kim Hummer, Curator, (503-750-8712)
USDA-ARS
33447 Peoria Road
Corvallis, Oregon 97333

Site: **CR-DAV**
National Germplasm Repository Davis
Kathleen Rigert, Curator, (916-752-6504)
USDA-ARS
Department of Pomology
University of California
Davis, California 95616

Site: **CR-GEN**
National Germplasm Repository Geneva
Phillip L. Forsline, Curator, (315-787-2390)
USDA-ARS
New York State Agricultural Experiment Station
Geneva, New York 14456-0462

Site: **CR-HIL**
National Germplasm Repository Hilo
Francis T. Zee, Curator, (808-959-5833)
USDA-ARS
c/o Beaumont Agricultural Research Center
461 West Lanikaula Street
Hilo, Hawaii 9672

Site: **CR-MAY**
National Germplasm Repository - Mayaguez
A. Sotomayer-Rios, Curator, (809-831-3435)
USDA-ARS
Tropical Agricultural Research Station
P.O. Box 70
Mayaguez, Puerto Rico 00709-0070

Site: **CR-MIA**
National Germplasm Repository Miami
Raymond J. Schnell, Curator, (305-238-9321)
USDA-ARS
Subtropical Horticultural Research Station
13601 Old Cutler Road
Miami, Florida 33158

Site: **CR-RIV**
National Germplasm Repository Riverside
Curator, (714-787-4399)
USDA-ARS
1060 Pennsylvania Avenue
Riverside, California 92507

Site: **DBMU**
Database Management Unit
Jimmie Mowder, Manager, (301-504-5666)
USDA-ARS-PSI-NGRL-GRIN
Building 003, Room 407
BARC-West
Beltsville, Maryland 20705

Site: **FLAX**
Flax Collection
Jerry F. Miller, Curator, (701-239-1321)
USDA-ARS
Walster Hall, Room 206A
North Dakota State University
Fargo, North Dakota 58105

Site: **GD**
Plant Germplasm Quarantine Office
Allan K. Stoner, Curator, (301-504-6235)
USDA-ARS
11601 Old Pond Drive
Glenn Dale, Maryland 20769-9157

Site: **IR-1**
Inter-Regional Potato Intro. Station
John Bamberg, Curator
(414-743-5406)
USDA-ARS
Peninsula Experiment Station
Sturgeon Bay, Wisconsin 54235

Site: **NA**
National Arboretum
Ned Garvey, Curator, (202-475-4836)
USDA-ARS
3501 New York Avenue, NE
Washington, DC 20002

Site: **NC-7**
North Central Regional PI Station
Peter Bretting, Curator, (515-292-6507)
USDA-ARS
Iowa State University
Ames, Iowa 50011

Site: **NE-9**
Northeastern Regional PI Station
James R. McFerson, Curator, (315-787-2244)
USDA-ARS
P. O. Box 462
New York State Agricultural Experiment Station
Geneva, New York 14456-0462

Site: **NPMC**
National Plant Materials Center
Nancy Moore, Curator, (907-745-4469)
USDA-SCS
HC 02
Box 7440
Palmer, Alaska 99645

Site: **NSGC**
National Small Grains Collection
Harold Bockelman, Curator, (208-397-4162)
USDA-ARS
National Small Grains Germplasm Research Facility
P.O. Box 307
Aberdeen, Idaho 83210

Site: **NSSL**
National Seed Storage Laboratory
Loren Wiesner, Curator, (303-495-3200)
USDA-ARS
Colorado State University
Fort Collins, Colorado 80523

Site: **PIO**

    Plant Introduction Office
    George A. White, Manager, (301-504-5328)
    USDA-ARS-PSI-NGRL
    Building 003, Room 409
    BARC-West
    Beltsville, Maryland 20705

Site: **S-9**

    Southern Regional PI Station
    Gilbert R. Lovell, Curator, (404-228-7255)
    USDA-ARS
    1109 Experiment Street
    Griffin, Georgia 30223-1797

Site: **SBMNL**

    Systematic Botany and Mycology Lab
    John Wiersema, (301-504-9181)
    USDA-ARS
    Building 011-A, Room 304
    BARC-West
    Beltsville, Maryland 20705

Site: **SOY-N**

    Soybean Collection
    Randall L. Nelson, Curator, (217-244-4346)
    USDA-ARS
    University of Illinois
    W-321 Turner Hall
    1102 S. Goodwin Ave.
    Urbana, Illinois 61801

Site: **TOBAC**

    Tobacco Collection
    Verne A. Sisson, Curator, (919-693-5151)
    USDA-ARS
    Crops Research Laboratory
    P. O. Box 1555
    Oxford, North Carolina 27565-1555

Site: **W-6**

    Western Regional PI Station
    Raymond L. Clark, Curator, (509-335-1502)
    USDA-ARS
    Room 59, Johnson Hall
    Washington State University
    Pullman, Washington 99164-6402

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